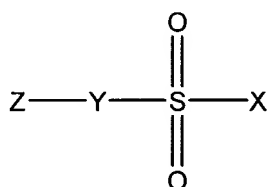


In the claims

Claims 1-33. (canceled)

34. (currently amended) A coating for contacting a plant surface comprising an effective amount of an anti-fouling compound represented by general structure 1:



1

wherein

X represents -OH, -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents O, S, Se, or NR;

Z represents optionally substituted alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(\text{CH}_2)_m\text{-R}_{80}$;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(\text{CH}_2)_m\text{-R}_{80}$;

R_{80} represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive; or a salt thereof,

wherein the coating releases the compound or a biologically active fragment thereof when in contact with a liquid or vapor.

35. (currently amended) The A coating of claim 34, wherein X represents -OH, F, Cl, or Br.

36. (currently amended) The A coating of claim 34, wherein Y represents O.

37. (currently amended) The A coating of claim 34, wherein Z represents optionally substituted alkyl, aryl, or $-(\text{CH}_2)_m\text{-R}_{80}$.

38. **(currently amended)** The A coating of claim 34, wherein Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
39. **(currently amended)** The A coating of claim 34, wherein Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
40. **(currently amended)** The A coating of claim 34, wherein Y represents NR and R represents H or alkyl.
41. **(currently amended)** The A coating of claim 34, wherein X represents ~~-OH~~, F, Cl, or Br; and Y represents O.
42. **(currently amended)** The A coating of claim 34, wherein X represents ~~-OH~~, Cl; and Y represents O.
43. **(currently amended)** The A coating of claim 34, wherein X represents ~~-OH~~, F, Cl, or Br; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.
44. **(currently amended)** The A coating of claim 34, wherein X represents ~~-OH or Cl~~; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.
45. **(currently amended)** The A coating of claim 34, wherein X represents ~~-OH~~, F, Cl, or Br; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
46. **(currently amended)** The A coating of claim 34, wherein X represents ~~-OH or Cl~~; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
47. **(currently amended)** The A coating of claim 34, wherein X represents ~~-OH~~, F, Cl, or Br; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
48. **(currently amended)** The A coating of claim 34, wherein X represents ~~-OH or Cl~~; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-

(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

49. **(currently amended)** The A coating of claim 34, wherein Y represents O; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.
50. **(currently amended)** The A coating of claim 34, wherein Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
51. **(currently amended)** The A coating of claim 34, wherein Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
52. **(currently amended)** The A coating of claim 34, wherein X represents $-OH$, F, Cl, or Br; Y represents O; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.
53. **(currently amended)** The A coating of claim 34, wherein X represents $-OH$ or Cl; Y represents O; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.
54. **(currently amended)** The A coating of claim 34, wherein X represents $-OH$, F, Cl, or Br; Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
55. **(currently amended)** The A coating of claim 34, wherein X represents $-OH$ or Cl; Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
56. **(currently amended)** The A coating of claim 34, wherein X represents $-OH$, F, Cl, or Br; Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
57. **(currently amended)** The A coating of claim 34, wherein X represents $-OH$ or Cl; Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-

dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

58. **(currently amended)** The A coating of claim 57, wherein the coating is temporary.

Claims 59-64 (**canceled**) ✓

65. **(currently amended)** The A coating of claim 34, wherein the release of the compound is at a constant rate.

66. **(currently amended)** The A coating of claim 34, which is a liquid.

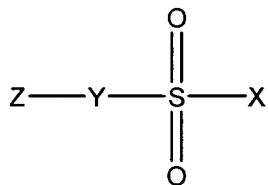
67. **(currently amended)** The A coating of claim 34, which is a gas or vapor.

68. **(currently amended)** The A coating of claim 34, which is a paste or other semi-solid state.

69. **(currently amended)** The A coating of claim 34, which is a solid.

70. **(currently amended)** The A coating of claim 34, which is a liquid and solidifies ~~into a hard~~ coating on a plant surface.

71. **(new)** A coating for contacting a plant surface comprising an effective amount of an anti-fouling compound represented by general structure 2:



2

wherein

X represents -OH, -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents O, S, Se, or NR;

Z represents optionally substituted alkylphenyl, heteroalkylphenyl, cycloalkyl, heterocycloalkyl, heteroaryl, aralkyl, heteroaralkyl, arylphenyl, heteroarylphenyl or $-(\text{CH}_2)_m\text{-R}_{80}$;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$;

R_{80} represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive; or a salt thereof ,

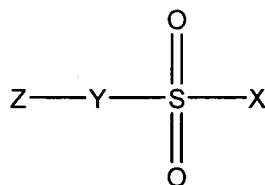
wherein the coating releases the compound or a biologically active fragment thereof when in contact with a liquid or vapor.

72. (new) The coating of claim 71, wherein Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.

73. (new) The coating of claim 71, wherein Z represents 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

74. (new) The coating of claim 34, wherein Y represents NR and R represents H or alkyl.

75. (new) A coating for contacting a plant surface comprising an effective amount of an anti-fouling compound represented by general structure 3:



3

wherein

X represents -OH, -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents O, S, Se, or NR;

Z represents optionally substituted alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$;

R_{80} represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive; or a salt thereof,

wherein the coating releases the compound or a biologically active fragment thereof when in contact with a liquid or vapor; and wherein the effective amount reduces the number of plant pathogens on a plant surface over about a 24 hour period by a factor of about 4 relative to a control plant surface, which does not comprise the compound.

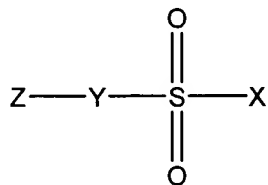
76. (new) The coating of claim 75, wherein the effective amount reduces the number of pathogens by a factor of about 8.

77. (new) The coating of claim 75, wherein the effective amount reduces the number of pathogens by a factor of about 10.

78. (new) The coating of claim 75, wherein the effective amount reduces the number of pathogens by a factor of about 15.

79. (new) A method of preventing biofouling accumulation on a plant surface, comprising the steps of:

(a) providing an antifouling composition comprised of one or more compounds represented by general formula 4:



4

wherein

X represents -OH, -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents O, S, Se, or NR;

Z represents optionally substituted alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$;

R_{80} represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive; or a salt thereof,

wherein the composition releases the compound or a biologically active fragment thereof when in contact with a liquid or vapor; and

(b) applying said antifouling composition to said plant surface.

80. **(new)** The method of claim 79, wherein X represents -OH, F, Cl, or Br.

81. **(new)** The method of claim 79, wherein Y represents O.

82. **(new)** The method of claim 79, wherein Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.

83. **(new)** The method of claim 79, wherein Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.

84. **(new)** The method of claim 79, wherein Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

85. **(new)** The method of claim 79, wherein R represents H or alkyl.

86. **(new)** The method of claim 79, wherein X represents -OH, F, Cl, or Br; and Y represents O.

87. **(new)** The method of claim 79, wherein X represents -OH or Cl; and Y represents O.

88. **(new)** The method of claim 79, wherein X represents -OH, F, Cl, or Br; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.

89. **(new)** The method of claim 79, wherein X represents -OH or Cl; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.
90. **(new)** The method of claim 79, wherein X represents -OH, F, Cl, or Br; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
91. **(new)** The method of claim 79, wherein X represents -OH or Cl; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
92. **(new)** The method of claim 79, wherein X represents -OH, F, Cl, or Br; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
93. **(new)** The method of claim 79, wherein X represents -OH or Cl; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
94. **(new)** The method of claim 79, wherein Y represents O; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.
95. **(new)** The method of claim 79, wherein Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.
96. **(new)** The method of claim 79, wherein Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.
97. **(new)** The method of claim 79, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.
98. **(new)** The method of claim 79, wherein X represents -OH or Cl; Y represents O; and Z represents optionally substituted alkyl, aryl, or $-(CH_2)_m-R_{80}$.

99. **(new)** The method of claim 79, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.

100. **(new)** The method of claim 79, wherein X represents -OH or Cl; Y represents O; and Z represents optionally substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.

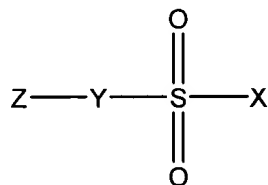
101. **(new)** The method of claim 79, wherein X represents -OH, F, Cl, or Br; Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

102. **(new)** The method of claim 79, wherein X represents -OH or Cl; Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

B 103. **(new)** A plant resistant to biofouling, comprising:

(a) a plant surface; and

(b) an antifouling layer on said surface with said antifouling layer comprising one or more compounds of general formula 5:



5

wherein

X represents -OH, -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents O, S, Se, or NR;

Z represents optionally substituted alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$;

R_{80} represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive; or a salt thereof,

wherein the antifouling layer releases the compound or a biologically active fragment thereof when in contact with a liquid or vapor.
